



Newsletter

The Antique Wireless Association of Southern Africa



172

November 2020

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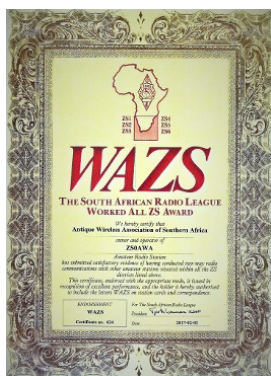
303

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Inside this issue:

HF Happenings	3
Dynamic Microphones	4-8
Valve QSO Party Results	5-8
AWA AGM	9
Notices	10

AWA Committee:

- * President—Renato ZS6REN
- * Acting VicePresident—John ZS1WJ
- * Technical Advisor—Rad ZS6RAD
- * Secretary/PRO—Andy ZS6ADY
- * KZN—Don ZS5DR
- * WC—John ZS1WJ
- * Historian—Oliver ZS6OG

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Reflections:

There is an old saying amongst the Jewish people that says, “put four Jews together in a room and you will have five different opinions”.

I think that very often, that same thing applies to radio Amateurs as well.

The only difference, I think, is that very often all of the opinions of the Radio Amateurs could be correct if applied in the right manner.

The discussion points on the Saturday morning net are a typical example of this. Very often the opinions raised around a typical topic are sometimes so varied, that one wonders if we all belong to the same fraternity.

Yet there is always a certain amount of sanity that prevails in the discussion and it is always met with a consensus that will get you going and digging into the books on amateur design.

Renato seems to have a list of topics as varied as what you can find, but yet always seems to choose the right one for

that particular Saturday.

The reason I am mentioning this is because it would be really great to have a few more differing opinions being thrown into the pot. It's like a good stew, that needs a fair amount of ingredients in order to get the right texture and taste.

If I think of a few years ago, the morning net used to have an attendance of around twenty to twenty five people calling in on just HF. These days we have 2m, 80m, 40m and Echolink available for us to use and we only get around ten to fifteen calling in.

There is a definite improvement in band conditions these days and we hope that it is going to start attracting more people to become active again.

I am surprised on the odd Saturday morning to hear some new call signs of new amateurs that have recently obtained their licences and enjoy listening in to the net.

This makes me wonder if all the things we discuss are really that outdated.

I think the basic principles of radio have remained the same, its just that the modern radios are able to do the things automatically that we do manually.

Just think of it, we tune in load plate and drive manually, but the modern rig does it automatically.

We tune the antenna (match it) to the freq we are using, the modern rig does it at the touch of a button.

We search manually for stations, the modern rig shows them on a waterfall and at the touch of a the screen, it goes to the frequency and optimises the sig automatically.

Is it us, or is it the manufacturer who has taken a lot of the fun out of operating a radio station and we have just got lazy.

Pull out that valve rig and have some fun again....

Best 73

DE Andy ZS6ADY

Wikipedia

Radio Propagation:

Absorption

Low-frequency radio waves travel easily through brick and stone and VLF even penetrates sea-water. As the frequency rises, absorption effects become more important. At microwave or higher frequencies, absorption by molecular resonances in the atmosphere (mostly from water, H₂O and oxygen, O₂) is a major factor in radio propagation. For example, in the 58–60 GHz band, there is a major absorption peak which makes this band useless for long-distance use. This phenomenon was first discovered during radar research in World War II. Above about 400 GHz, the Earth's atmosphere blocks most of the spectrum while still passing some - up to UV light, which is blocked by ozone - but visible light and some of the near-infrared is transmitted. Heavy rain and falling snow also affect microwave absorption.

HF Happenings:

The RaDAR Challenge

The third RaDAR Challenge for 2020 takes place from 00:00 UTC to 23:59 UTC on Saturday 7 November 2020. It is a twenty-four hour activity, but you only need to operate for 4 hours, you choose the 4 hours. You may use all amateur bands including cross band contacts via amateur radio satellites. Modes – CW, SSB, FM or any legal amateur radio digital mode. The RaDAR challenge requires more than a minimalistic information exchange. Accurate information exchange is considered more important than a large QSO count. Call sign, name, RS (T) report and grid locator. The grid locator of six characters is acceptable but should preferably be accurate to 8 or 10 characters for higher position accuracy (especially for moving RaDAR stations).

Get all the information in the 2020 Blue Book.

Unanticipated RFI

Dick, K7BTW, experienced some unanticipated RFI with his coffee grinder:

"Went to 80 meters during a RTTY contest tonight and started transmitting. It started my coffee grinder in the kitchen, it kept going when I stopped transmitting. By the time I got to the kitchen to pull the plug, it had ground every bean in the hopper. That has never happened before."

Tinnitus

Tinnitus, the perception of unwanted ringing, tones, or noise, can be symptom of a few underlying pathologies. One company, Lenire (<https://www.lenire.com/>) is using neuromodulation to treat the symptoms of tinnitus caused by nerve or brain dysfunction. "It works by targeting a specific nerve or brain region with a stimulus, such as low levels of electrical energy, in order to alter or adjust the activity within the body or brain to improve a health condition."

(Maybe I should contact them! Ed.)

Word to the Wise

"**Roger That**" - Roger "indicates that a message was heard and understood" while the "that" part refers to the message. According to Dictionary.com, "Roger was brought into the spotlight in part due to public broadcasts of NASA's Apollo missions in the 1960s."

Operating Tip

Cheat Sheets - Knowing the possible exchanges you might hear is helpful, even in a casual contest. For example, in the recently completed Illinois QSO Party, having the list of Illinois counties at hand is a good idea since there are 102 of them. For a contest like the IARU in July, it pays to become familiar with the call signs of the headquarters stations to recognize them as multipliers and be able to jump on them. Special call signs are issued by countries specifically for contests, and announcements of those are published on website such as NG3K.com.

African DX

Contacts with stations on the African continent count towards the SARL's All Africa Award (www.sarl.org.za/public/awards/awards.asp)

Morocco, CN. CN45MS between 1 and 7 November from Oujda commemorates the Green March of 45 years ago. QSL via RW6HS.

African Islands

5R, Madagascar, 5R. Sandro, IN3PPH has received his operating permit for Madagascar (AF-013, WW Loc. LN46CQ). Depending on Covid-19 circumstances, he plans to operate as 5R8SS on HF. QSL via IN3PPH.

Calendar:

October

31 – SARL 95 40 m Club Sprint

November

7 - RaDAR Challenge

10 and 11 - Taurids meteor shower

11 - Armistice Day - 11 November 1918

12—Paraskevidekatriaphobia

14 - World Diabetes Day

14 and 15 - SARL VHF/UHF Analogue contest

15 – 75th anniversary of the DXCC programme

17 and 18 - Leonids meteor shower

18 - SARL 80 m Wednesday Club Sprint

21 SARL Newbie Party

28 - West Rand Flea Market

28 and 29 – the CQ WW DX CW Contest

Some dynamic microphones and their signatures

Martin Owen G4JSX



Figure 1a. Microphones reported in this article. Top row, left-to-right: A, B, E, C, O Bottom row, left-to-right: G, F, H, J



Figure 1b. Microphones reported in this article. Left-to-right: M, L, K, M with dirty insert, N Interest is stimulated • A Vitavox B60 type, identified as B. • A 'sawn off GPO Handset, using its Type 4T earpiece as a microphone, identified as D.

The leads from these three microphones are each terminated with a 5-pin DIN plug, which mates with a receptacle on an 'audio input' diecast box (Figure 3), having Clansman 7-pin and BNC receptacles fitted as well, all connected in parallel.

Figure 2. The Author's Redifon 643 CJP2



The Author has an Admiralty transmitter/receiver outfit known as a 643 CJP2 (Figure 2), which is a 1970's design, manufactured by Redifon. It is used regularly on the air, on AM, LSB and USB, with a choice of microphones, each of which is deemed 'acceptable' from the point of view of effectiveness for communications, in other words, not necessarily giving faithful or 'BBC' quality reproduction of the users voice.

Microphones commonly used by the author are (Figure 1 a):

- A PYE 'Tulip' type, identified as A.

Figure 3. Audio input diecast box



This setup enables different microphones to be used, plus a facility for test inputs, e.g. two-tone audio signals. In addition to providing a means of connecting microphones, the 643 has a multi-pin Amphenol panel receptacle, marked 'Local', visible in Figure 2. The microphone input pins of this receptacle are connected in parallel with the diecast box microphone connections. This local connection is in regular use with a further microphone within a handset, with curly lead, identified as F (Figure 1a).

Further 860 acquisitions

Four Vitavox microphones were acquired from an internet source, two apparently unused B60 types and two B90 (carbon) types. These came at a very attractive price and were intended as spares. The B60-type is allegedly blastproof, waterproof to one metre, shockproof and designed for use with a gloved hand. It has an alloy case and pressel bar, all enclosed in a rubber outer. Microphone E (Figure 1a), one of the two new ones, was fitted with an Amphenol-type plug and tried on-air. To the author's disappointment, off-air reports for this were less than complimentary, it being described as 'boxey', for example. As far as is known and according to the manufacturers' information, there is only one insert used in these microphones, suitable for a load impedance of 25 Ω . The DC resistance of all three B60s was found to be 25 Ω .

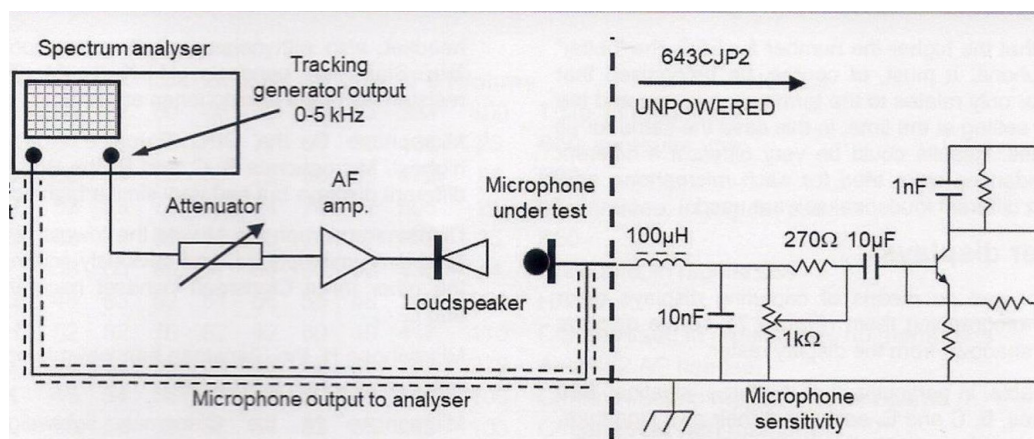


Figure 4. Setup for the measurement of dynamic microphone signatures division. The idea which emerged was to feed this output into an audio amplifier and loudspeaker and place each microphone in turn at a controlled distance in front of it, and note the resultant spectrum analyser display. Hence, a measurement setup was devised as shown in Figure 4.

Signatures

At this point, the author wondered if there was any way to determine why two supposedly identical microphones should sound noticeably different and if there was a way to 'measure' the difference. In addition, some microphones always had good reports on the air, for example the GPO 4T earpiece D and the Clansman handset H (Figure 1a), the latter in regular use with the authors' VRC321. Was there a way of rating the performance of all these microphones by some form of measurement against each other and, indeed, against the other microphones in the shack, some of which always had 'poor' reports on air?

It was felt that a suitable measure would be outputs in mV or dB above an arbitrary datum between, say, 500 Hz and 3.5 kHz at, say, 500 Hz. intervals.

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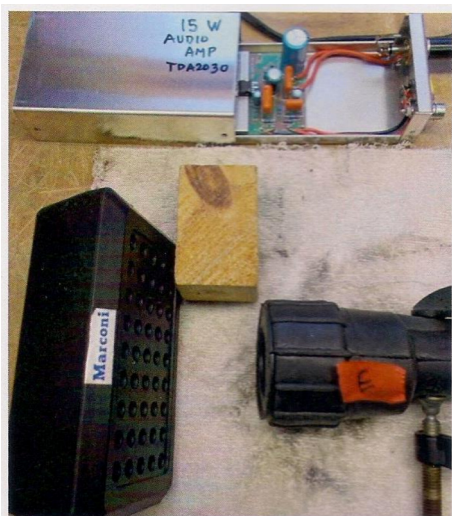
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Test setup

Figure 5. Loudspeaker and microphone undergoing test with amplifier below.



The 'elderly' Marconi spectrum analyser in the shack has a suitable tracking generator sweep output range of 0-5 kHz, with a vertical input scale of 10 dB per major

The termination for the microphone consisted of the series input choke, 0.01 IJF shunt capacitor to earth and 950 Q microphone sensitivity potentiometer to earth, all looking into the unpowered 643 input, in shunt with the 50 Q input impedance of the spectrum analyser (Figure 4).

The attenuator allowed the output to be 'landed' on the spectrum analyser screen with similar amplitude and frequency as a 'whistle' and the attenuation was kept the same for all microphones tested. The audio amplifier was found as a kit in a 'box of bits' acquired at a VMARS auction and is based on the TDA2030 audio amplifier IC. The microphone under test was placed about 40 mm in front of the loudspeaker using a piece of wood (Figure 5) as a gauge.

Figure 6. Method of calculating EFC. The 'Effectiveness for Communications' is the sum of responses in the range 0.5-3.5 kHz,

i.e. $64+73+71+67+77+64+50=466$

The method of measurement was dubbed 'Effectiveness for Communications' or EFC. The result is a number, generated by adding up all the ordinates (vertical axis figures) of the spectrum analyser display in dB at 500 Hz intervals from 500 Hz to 3.5 kHz (Figure 6). It was felt that there must be many ways of analysing the displays, but this way was found to be easy and quick. It was imagined that the higher the number for EFC, the 'better' the microphone.

It must, of course, be recognised that this number only relates to the termination in use and the attenuator setting at the time, in this case the same for all microphones. Results could be very different if different input impedances were tried for each microphone and, indeed, if a different loudspeaker were used.



Analysar displays

The Author had no means of capturing displays other than by photographing them (Figure 7), so the displays have grey shadows from the display raster.

It is noticeable, in particular, that the three 'identical' B60 microphones, B, C and E, each have their own signature, and the microphone with the highest output is D, the GPO earpiece, closely followed by B60 microphones B and C. Also noticeable is a distinct dip at about 2 kHz on many of the traces. The tracking generator and amplifier output levels were examined for flatness and appeared satisfactory, so the author suggests that the loudspeaker sound output at around this frequency was at a reduced level.

Other microphones were tested and are listed below (Table 1), namely an Admiralty Airlite headset noisecancelling microphone, J, a Clansman lightweight headset, also with noise-cancelling microphone, N, and four Clansman handsets, H, K, L, M. The DC coil resistances of the microphones are listed.

Microphone D, the GPO Earpiece type, scored the highest. Microphones B, C, and E (the B60 types), show different displays but had very similar high scores.

Clansman microphone M was the lowest overall scoring (and dirty) microphone, and obviously scoring lower than the other three Clansman handset microphones H, K, and L.

Microphone H, the Clansman handset microphone in use with the VRC321, scored high.

Microphone N, the Clansman lightweight headset microphone, scored next to lowest.

The EFC scores generally corroborate on-air reports and the whole exercise seems to show that there are sometimes significant variations between the outputs of nominally identical microphones, for example, the Clansman handsets H, K, and L. The author found this rather crude method of microphone comparison very interesting and revealing.

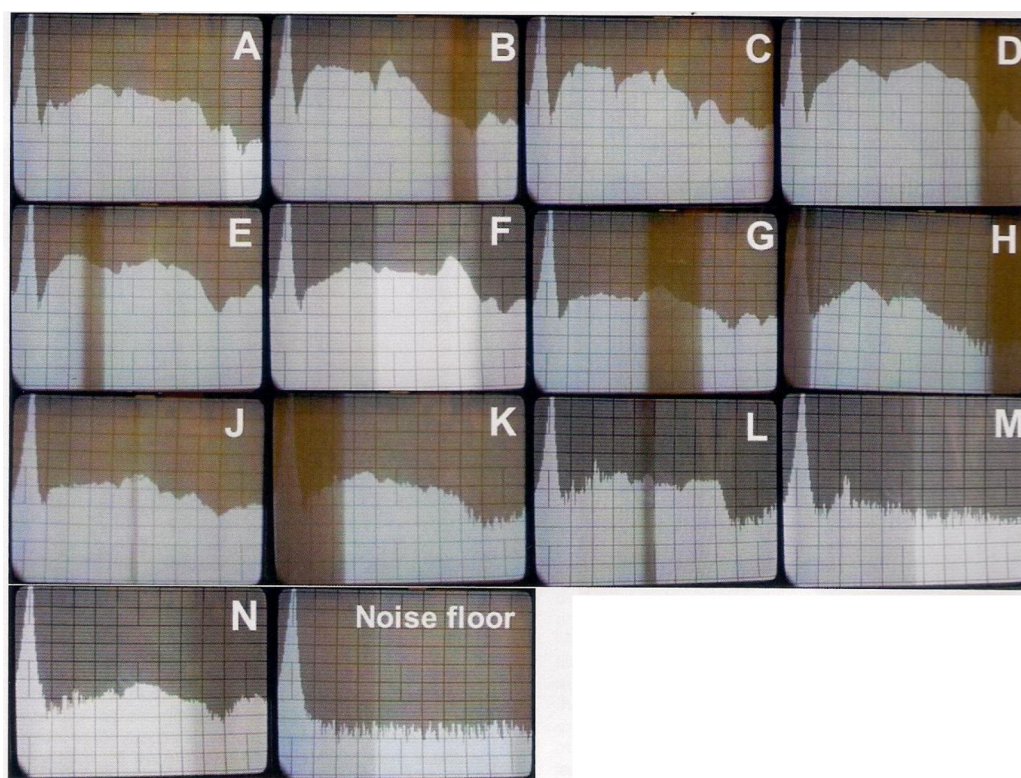


Figure 7. Spectrum analyser displays for the responses of the microphones in this investigation

	Frequency									
MIC	0.5k	1k	1.5k	2k	2.5k	3k	3.5k	EFC	R/ohms	NOTES
A	53	52	60	60	60	55	53	393	300	Tulip, in regular use
B	64	73	71	67	77	64	50	466	25	B60, in regular use
C	63	74	73	68	72	66	56	472	25	B60
D	62	73	76	70	74	78	72	505	21	4T earpiece, in regular use
E	62	73	68	62	68	72	67	472	25	B60
F	53	60	66	67	64	63	62	435	44	H/set mic, in regular use
G	48	53	52	51	56	55	48	363	264	H/set mic
H	52	62	70	62	62	60	49	417	110	C/man H/set, in regular use, no membrane
J	48	52	53	53	58	52	46	362	279	Airlite 62 AP headset
K	46	54	56	54	52	50	48	360	100	C/man H/set no membrane, for spares
L	50	56	60	56	54	52	55	383	100	C/man H/set with membrane
M	42	48	44	36	39	38	34	281	100	C/man H/set with membrane, dirty
N	38	44	40	42	48	46	40	298	186	C/man headset



Richard F4WCD

Table 1. Overall scores (EFC) calculated for the microphones in this investigation from the amplitudes recorded on the spectrum analyser at 500 Hz intervals. Inspired by this article I made up a homebrew mic from a French telephone handset and I coincidentally acquired a PYE Tulip mic from a junkbox in the shed of a late friend's widow which I re-furbished for comparison.

The Tulip is very good, far better than the Yaesu YD844A that came with the FT1 01 ZD mk3 but consistently the earpiece gets best reports.

Results of the AWA Valve QSO Party

The Valve QSO Party was held over the weekend of 03 and 04 November with AM and SSB being modes of operation.

The QSO party was well attended and there were many stations taking part, but very few logs were submitted. Again the use of a hybrid or all valve radio proved to be the way to go in both categories.

Band conditions always tend to be a factor too and with the majority of call signs coming from Div 6 and Div 1, it was the outlying stations that scored the most QSO's. Who knows, maybe once we see an upturn in band conditions there may be more stations that will come and join in the fun.

The following are the results:

AM section:

First place : Andre Botes ZS2ACP

Second place : Jerry van Zijl ZS2TL

SSB Section:

First place : Andre Botes ZS2ACP

Second : Jerry van Zijl ZS2TL

Third : Theunis Potgieter ZS2EC

In the AM Section there were a total of 16 stations taking part.

In the SSB there were a total of 36 stations.



Congratulations to the winners and thanks to all for taking part

AWA AGM 2020

Due to the Covid pandemic and the after effects that have been felt across the country, it was decided this year to not have an AGM.

The election of a new president and committee would only take place in 2021 after Renato had served his full term, as per our constitution, and the AGM would really have been there to pass on relevant information only. We therefore feel this can be done by means of this Newsletter too.

Membership:

The membership has grown to a number of 374 and we continue to get requests for membership almost on a monthly basis.

This year saw us take on a reciprocal agreement with the Canadian Antique Radio group to share news and items, this through a member in Canada who found us on the internet.

Our overseas membership has grown amazingly with many countries being represented.

Finances:

Our finances are in a very healthy state still thanks to the continuous donation of items that get sold at fleamarkets.

This also covers our annual licence fees and membership of the SARL. Should anyone wish to see a copy of our financial statement they are welcome to request this.

Website:

The website remains still as one of the biggest attractions of membership applications. This is ably looked after by Jacques ZS6JPS, but very underutilised as far as what is available for members to use.

We would like to see more activity on the website and posting of articles and question and answer forum.

Saturday Net:

The Saturday net is still an attractive part of the AWA. Although we believe it is also grossly under utilised, as it would be good to hear a lot more people on the net, it still is fairly well attended each weekend. The topics of discussion are a never ending source of information for all that join in.

SAIEE:

Oliver continues to keep abreast of things happening at the SAIEE with regular visits and work in the museum.

We still need to organise operation of the SAIEE radio room on a regular basis.

A message from the President:

To all of you who continue to support the AWA and what it stands for, a great big thank you. To the committee who so ably keep everything going also a thank you for the support in this year. Lets hope that 2021 will prove to be a much better year in all aspects and we look forward to sharing it with you.

CONTACT US:

P.O. Box 12320
Benoryn
150

Mobile: 082 448 4368
Email: andy6gady@vodamail.co.za

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**Antique Wireless Association
of Southern Africa**

Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterday's radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website.

Notices:**Net Times and Frequencies (SAST):**

Saturday 06:00 (04:00 UTC) —AM Net—3615
Saturday 07:00 (05:00 UTC) —Western Cape SSB Net— 3640
Saturday 08:30 (06:30 UTC)— National SSB Net— 7140; Sandton repeater 145.700
Echolink—ZS0AWA-L; ZS6STN-R
Relay on 3615 for those having difficulty with local skip conditions.
Saturday 14:00 (12:00 UTC)— CW Net—7020; (3550 after 15 min if band conditions not good on 40)
Wednesday 19:00 (17:00 UTC) — AM Net—3615, band conditions permitting.

AWASA WhatsApp group:

Should you want to get on the AWA WA group where a lot of technical discussion takes place, send a message to Andy ZS6ADY asking to be placed on the group. This is a no-Nonsense group, only for AWA business.
+27824484368

For Sale:

Matt ZS1MJJ is having a clean out sale Collins KWM2A, 51S1, 75S3, Racal RA117 Hallicrafters SX28 (2 off) Yaesu FT200 a few others . Plenty of valves and linear parts.

Contact him 082 848 2157 for info and pricing.

Trio 9R-59D available:
Contact Ed La Rose 076 420 1523